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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/800,596	03/15/2004	Jeffrey A. Von Arx	279.348US2	1790
21186	7590	03/03/2008		
SCHWEGMAN, LUNDBERG & WOESSNER, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402			EXAMINER SCHAETZLE, KENNEDY	
			ART UNIT 3766	PAPER NUMBER
			MAIL DATE 03/03/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/800,596

Applicant(s)

VON ARX ET AL.

Examiner

Kennedy J. Schaetzle

Art Unit

3766

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 10-16 and 18-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10, 12, 14-16, 18 and 19 is/are rejected.
- 7) ☒ Claim(s) 11, 13 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
3. Claims 1-7, 10, 12, 14-16, 18 and 19 are rejected under 35 U.S.C. 103(a) as being obvious over Paul (Pat. No. 5,697,958) in view of Mass et al. (Pat. No. 6,675,045) or Mass et al. (Pat. No. 7,313,441).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an

invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Regarding claim 1, Paul discloses an implantable medical device, comprising: a housing for containing electronic circuitry; an antenna embedded in a dielectric compartment (see text abridging cols. 15 and 16); circuitry within the housing connected to the antenna for transmitting and receiving a modulated radio-frequency carrier at a specified carrier frequency (see col. 6, lines 3-26); and, an antenna tuning circuit for matching the impedance of the antenna to the transmitting/receiving circuitry at a specified carrier frequency by loading the antenna with inductance or capacitance (see col. 8, lines 31-61).

Paul does not, however, specifically discuss converting between a single-ended signal generated or received by the transmitter/receiver circuitry and a differential signal generated or received by the antenna, wherein the antenna tuning circuit further comprises a variable tuning capacitor for adjusting the resonant frequency of the antenna. Mass et al. disclose a related medical device wherein the antenna tuning

circuit includes a balun transformer and variable capacitor for performing the recited claim function. A balun transformer is well-known for its ability to convert between a single-ended signal and a differential signal and finds common usage in antenna tuning circuits. To utilize this well-known structure in the antenna tuning circuit of Paul in order to provide impedance matching and optimize antenna operation, would have therefore been considered a matter of obvious design by those of ordinary skill in the antenna design arts.

Regarding claim 6 and claims with similar limitations, Fig. 9 of Paul shows an antenna in the header orientated roughly parallel to the surface of the device housing. The electrical length of the antenna is a matter of optimization. Antenna artisans would have recognized that for efficient radiation/reception of electromagnetic energy, the physics dictate horizontal antenna orientations to be of electrical lengths that are half the wavelength of the radiation.

Regarding claim 7 and claims with similar limitations, Paul teaches that any appropriate form of antenna may be used (col. 6, lines 23-26, col. 9, lines 15-19, etc.) and that antenna orientation may be varied to optimize detection (col. 14, lines 19-67). To employ a coiled antenna in a roughly perpendicular direction to the surface of the housing would have therefore been considered a matter of obvious design with the exact orientation depending on the application at hand. In such an orientation, skilled antenna design artisans would have recognized that the physics dictates a $\frac{1}{4}$ wavelength antenna to maximize antenna efficiency.

Regarding claim 16, Mass et al. show the use of a variable capacitor to tune the antenna as is old and well known in the art. The courts have long established, that making a feature adjustable, where needed, is not a patentable advance. Clearly electronics artisans have used adjustable capacitors to allow modification of circuit parameters in order to fine-tune antenna operation. Those of ordinary skill in the art looking to maximize power transfer and account for minor fluctuations in capacitance due to manufacturing variances, would have seen the obviousness of optimizing circuit impedance and thus the resonant frequency by providing an adjustable capacitor.

4. Claims 1-7, 10, 12, 14-16, 18 and 19 are rejected under 35 U.S.C. 103(a) as being obvious over Paul (Pat. No. 5,697,958).

Regarding claim 1, Paul discloses an implantable medical device, comprising: a housing for containing electronic circuitry; an antenna embedded in a dielectric compartment (see text abridging cols. 15 and 16); circuitry within the housing connected to the antenna for transmitting and receiving a modulated radio-frequency carrier at a specified carrier frequency (see col. 6, lines 3-26); and, an antenna tuning circuit for matching the impedance of the antenna to the transmitting/receiving circuitry at a specified carrier frequency by loading the antenna with inductance or capacitance (see col. 8, lines 31-61).

Paul does not, however, specifically discuss converting between a single-ended signal generated or received by the transmitter/receiver circuitry and a differential signal generated or received by the antenna, wherein the antenna tuning circuit further comprises a variable tuning capacitor for adjusting the resonant frequency of the

antenna. A balun transformer is, however, well-known for its ability to convert between a single-ended signal and a differential signal and finds common usage in antenna tuning circuits. To utilize this well-known structure in the antenna tuning circuit of Paul in order to provide impedance matching and optimize antenna operation, would have therefore been considered a matter of obvious design by those of ordinary skill in the antenna design arts.

Regarding claim 6 and claims with similar limitations, Fig. 9 of Paul shows an antenna in the header orientated roughly parallel to the surface of the device housing. The electrical length of the antenna is a matter of optimization. Antenna artisans would have recognized that for efficient radiation/reception of electromagnetic energy, the physics dictate horizontal antenna orientations to be of electrical lengths that are half the wavelength of the radiation.

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Regarding claim 16, the courts have long established, that making a feature adjustable, where needed, is not a patentable advance. Clearly electronics artisans

have used adjustable capacitors to allow modification of circuit parameters in order to fine-tune antenna operation. Those of ordinary skill in the art looking to maximize power transfer and account for minor fluctuations in capacitance due to manufacturing variances, would have seen the obviousness of optimizing circuit impedance and thus the resonant frequency by providing an adjustable capacitor.

Response to Arguments

5. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

6. Claims 11, 13 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kennedy J. Schaetzle whose telephone number is 571 272-4954. The examiner can normally be reached on M-F from 9:30 -6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Layno can be reached on M-F at 571 272-4949. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kennedy J. Schaetzle/
Primary Examiner, Art Unit 3766

KJS
February 20, 2008